

Background Concerning the Present Invention

The present invention is directed generally to combinations of a light transmissive substrate having an optical interference pattern, a diffraction grating pattern, or a holographic image pattern formed on one surface thereof, and a color shifting multilayer optical film that is coated on one of the surfaces of the substrate. All claims now specify that the optical film is formed of an absorber layer coated on the light transmissive substrate, a dielectric layer on the absorber layer, and a reflector layer on the dielectric layer.

The inventive security article is observed from the first side of the light transmissive substrate at some angle or angles of view. Light passes through the light transmissive substrate and through the color shifting optical film, and is reflected from the reflector layer of that film. This combination was discovered to provide unexpectedly highly observable effects from the pattern on the light transmissive substrate in interaction with the color shifting effects from the color shifting multilayer reflective film. Indeed, the claimed product was characterized as an "exciting" trend in optical document security at a conference of people involved with this technology. *See Optical Security and Counterfeit Deterrence Techniques III*, January 2000, attached hereto as Exhibit A.

Rejection of Claims 1-4, 53 and 56 as Anticipated by Lu

Claims 1-4, 53 and 56 were rejected as being anticipated by Lu. Without acquiescing in this rejection, applicants have cancelled claims 1-4, and has amended independent claim 53 to include the specific limitation that the color shifting multilayer

optical film be formed of an absorber layer, a dielectric layer and a reflector layer so as to conform that aspect of these claims to the other independent claims that were not rejected as being anticipated by Lu.

Rejection of Claims 1-4, 8, 53 and 55-56 as anticipated by Uyama

Claims 1-4, 8, 53 and 55-56 were rejected as being anticipated by Uyama. Without acquiescing in this rejection, applicants have cancelled claims 1-4, and have amended independent claim 53 to include the specific limitation that the color shifting multilayer optical film be formed of an absorber layer, a dielectric layer and a reflector layer so as to conform that aspect of these claims to the other independent claims that were not rejected as being anticipated by Uyama.

Rejection of All Pending Claims as Obvious in view of the Combination of Uyama and Coombs

All of the pending claims were rejected as being obvious in view of the combination of Uyama US Patent No. 5,700,550 and Coombs US Patent 5,214,530. Applicants respectfully traverse these rejections.

Uyama discloses a "hologram forming layer 4" followed by a stack of high and low index materials that form a "transparent evaporated layer 10" followed by an adhesive layer 16. An adhesive layer 16 is selected that does not have an effect on the optical properties of transparent evaporated layer 10. Optional layers 12 and 14 may be interposed between the adhesive layer 16 and transparent evaporated layer 10.

They Uyama device is transparent, and hence will show the surface of an object 20 onto which it is adhesively applied, and that surface will have an effect upon the

optical properties of Uyama's device. Additional aspects of Uyama's device provide for patterning of the adhesive layer to prevent re-use of the device if it is removed from the object 20.

The presently pending claims all require the use of a three-layer color shifting structure coated onto a light transmissive patterned substrate. The third layer of the color shifting multilayer film is a reflector. Hence, the inventive device is not transparent, and unlike the Uyama device, an object onto which the inventive device is affixed is not observable through the device and will not have an effect upon the optical properties of the inventive device. Were one to replace the transparent evaporated layer 10 of Uyama with the structure disclosed in Coombs as the Examiner has suggested, the resultant structure would not be transparent, and Uyama's security features based on both the optical properties of the object and based upon the special adhesive structure would be lost. Inasmuch as the combination recited by the Examiner destroys the disclosed functionality of Uyama, this combination is improper as establishing a basis for obviousness of the claimed combination.

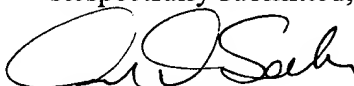
In addition, Uyama is silent concerning the structure and formation of the ~~hologram forming layer 4. It cannot be determined from Uyama whether the hologram~~ pattern is in the top or bottom side of layer 4. Independent claims 9 and 57 specifically recite that the pattern of the instant invention is on the side of the claimed transparent substrate opposite the side where the color shifting film is formed. Inasmuch as Uyama is silent on this feature, Applicants believe this provides another claimed difference that makes it improper to reject the pending claims as obvious over the cited combination.

The structure disclosed in the cited Coombs reference also differs from that defined in the pending claims, each of which specify an absorber layer on the surface of the light transmissive substrate; a dielectric layer on the absorber layer; and a reflector layer on the dielectric layer.

In view of the foregoing, Applicants believe the pending claims are patentable in their present form, and respectfully ask that the Examiner enter a notice of allowance. In the event the Examiner identifies any remaining impediment to allowance of the claims that might be handled by telephone, the Examiner is encouraged to telephone the undersigned.

Dated this 15th day of January, 2003.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

53. (Twice Amended) A security article comprising:

a visible light transmissive substrate having a first surface and an opposing second surface, the first surface having an optical interference pattern; and

a color shifting optical coating on one of the first or second surfaces of the substrate, the optical coating providing an observable discrete color shift such that the article has a first background color at a first angle of incident light or viewing and a second background color different from the first background color at a second angle of incident light or viewing, said color shifting optical coating comprising:

an absorber layer on the second surface of the substrate;

a dielectric layer on the absorber layer; and

a reflector layer on the dielectric layer;

wherein the article exhibits an optical interference effect in addition to the first and second background colors.